External Consumer Access to FAA Data via SWIM

Federal Aviation Administration

FAA Communications, Information & Network Programs Group (CINP)

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Topics

- **SWIM Background**
- **Data Product Availability**
- **Becoming a SWIM Consumer**
- **FAA Documents for SWIM Consumers**

SWIM Background and Benefits

- **Replaces unique interfaces with modern standards-based data exchange**

- **Provides stakeholders with access to FAA data without having to connect directly to individual systems**

- **Facilitates leveraging a single interface to receive multiple data products**

- **Establishes a single point of contact for FAA data**

- **Establishes Enterprise Help Desk for SWIM operational consumer calls**

- **More information provided at:**
  - http://www.faa.gov/nextgen/swim

SWIM Data Product Availability (Current)

Access Agreement Portal at http://data.faa.gov to register and request access.

Producer	Description	NSRR Business Service Name	Data.faa.gov
ITWS	Integrated Terminal Weather System (ITWS) provides a variety of weather information in graphic and textual forms, such as windshear and microburst predictions, storm cell and lightning information, and terminal area winds aloft	SWIM ITWS Subscription	Integrated Terminal Weather
TFMS	Traffic Flow Management (TFMS) will provide Aircraft Situation Display (ASDI) data, which will include aircraft scheduling, routing, and positional information	TFMData: Flight Data	Traffic Flow Management Data
		TFMData: Flow Data	
STDDS	SWIM Terminal Data Distribution System (STDDS) provides surface movement data (ASDE-X), Runway Visual Range (RVR), and a variety of departure event data	Surface Movement Event (SMES)	Surface Movement Event
		Airport Data (APDS)	Airport Data
AIM FNS	Provides Notice to Airmen (NOTAMs)	FNS NOTAM Distribution	Digital Notice to Airmen (NOTAMs)
SFDPS	SWIM Flight Data Publication Service (SFDPS) will provide a variety of En Route flight data, such as flight plans, beacon codes, and handoff status. SFDPS will also disseminate data regarding airspaces, such as Sector configuration data, route status, Special Activity Airspace (SAA) status, and altimeter settings.	En Route Flight Data Publication	En Route Flight and Related Data
		En Route Airspace Data Publication	
		En Route Operational Data Publication	
		En Route General Message Publication	

SWIM Data Product Availability (Future)

Products scheduled for consumption by external entities and listed on the Access Agreement Portal in 2016 or beyond.
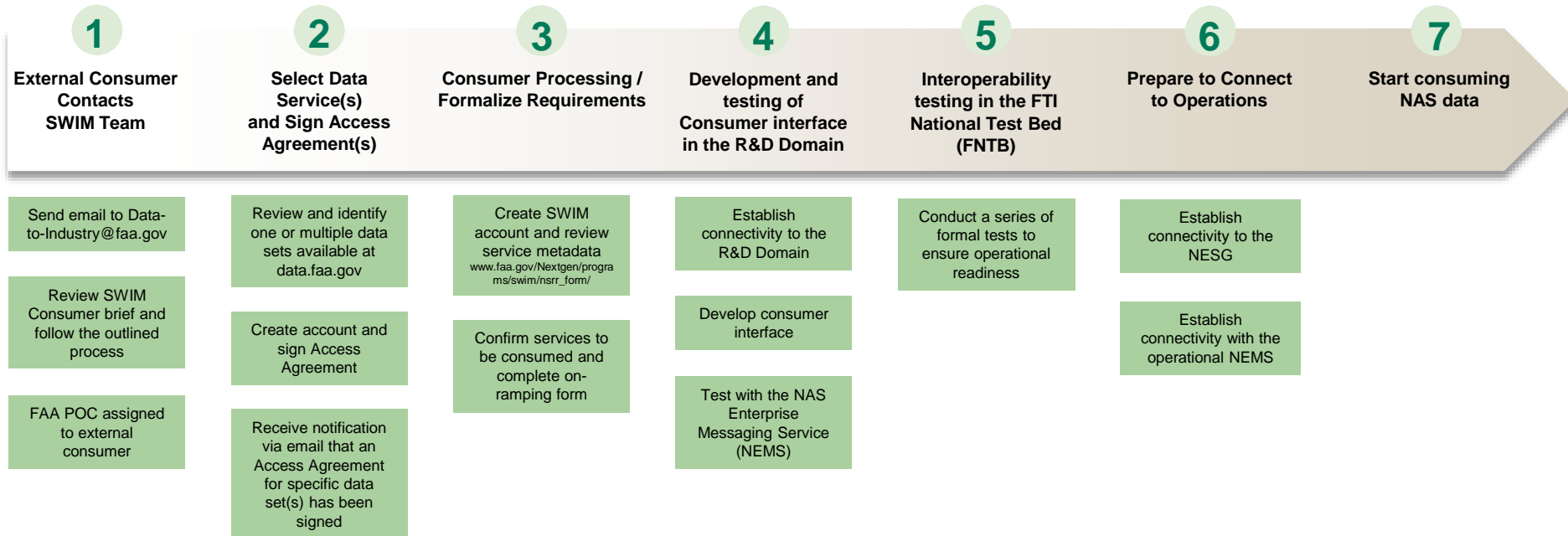
Producer	Description	NSRR Business Service Name
AIM-M Segment 2	AIMM Segment 2 (S2) will modernize the ingestion, integration, management, and distribution of aeronautical information (AI) by establishing the Aeronautical Common Services (ACS) and a one-stop-shop (OSS) customer portal. ACS and OSS will streamline dissemination and updates to Airport reference and configuration data, SAA/ SUA, FNS, and other types of AI information.	TBD
AIM SAA	Provides Airport reference and configuration data, including: definitions and schedule information for Special Activity Airspace (SAA), Temporary Flight Restriction (TFR), procedure (RNAV/RNP) data, and obstacles.	Get Static SAA
		SAA Operational Schedule
		SAA Schedule Notification
CSS-Wx	CSS-Wx will modernize, centralize and streamline distribution of weather within the NAS. CSS-Wx will replace with NEMS-based SOA Services existing data feeds from ITWS, CIWS, EWD, WMSCR, and WARP.	TBD

SWIM Data Product Availability (Future)

Products scheduled to be available for consumption by external entities and listed on the Access Agreement Portal in 2016 or beyond.

Producer	Description	NSRR Business Service Name
STARS/ STDDS	Disseminate Standard Terminal Automation Replacement System (STARS) data via the NEMS	Terminal Automation Information Service (TAIS)
TBFM	Time Based Flow Management (TBFM) will provide a variety of aircraft metering information, airport configuration and adaptation data.	TBFM Metering Publication
TFDM	Terminal Flight Data Manager (TFDM) will provide a variety of Airport information, Surface and flight data, and flow information	TBD
WMSCR	The Weather Message Switching Center Replacement System (WMSCR) collects, processes, stores, and disseminates textual aviation weather products such as PIREPs and Altimeter data.	Publish PIREP
		Publish Altimeter Setting
		WMSCR Report Retrieval Service

External Consumer On-ramping Process

1	2	3	4	5	6	7
External Consumer Contacts SWIM Team	Select Data Service(s) and Sign Access Agreement(s)	Consumer Processing / Formalize Requirements	Development and testing of Consumer interface in the R&D Domain	Interoperability testing in the FTI National Test Bed (FNTB)	Prepare to Connect to Operations	Start consuming NAS data

Send email to Data-to-Industry@faa.gov	Review and identify one or multiple data sets available at data.faa.gov	Create SWIM account and review service metadata www.faa.gov/Nextgen/programs/swim/nsrr_form/	Establish connectivity to the R&D Domain	Conduct a series of formal tests to ensure operational readiness	Establish connectivity to the NESG	
Review SWIM Consumer brief and follow the outlined process	Create account and sign Access Agreement	Confirm services to be consumed and complete on-ramping form	Develop consumer interface		Establish connectivity with the operational NEMS	
FAA POC assigned to external consumer	Receive notification via email that an Access Agreement for specific data set(s) has been signed		Test with the NAS Enterprise Messaging Service (NEMS)			

Note 1: Existing NEMS users may skip to the FNTB or Operations stage

Note 2: AIM FNS NOTAM Distribution consumers will not connect to R&D domain in Step 5, see AIM Section at end of this briefing

Step1: Process Kick-off

- **Send an email to Data-To-Industry@faa.gov as soon as possible**
    - Upon receipt of email, FAA will assign a POC to address questions and escalate issues
- **Tips to Consumers**
    - Sending the email is a critical step in the process
    - Reach out to the FAA POC with questions
        - Your POC will review steps and timelines associated with on-ramping

Step 2: Data Catalog and Access Agreement

- **NAS Data Release Group**
  - The NAS Data Release Group evaluates all applicable NAS Data Release requests for the FAA to determine if they are eligible for approval by the NAS Data Management Director. The FAA may only release NAS data to external organizations identified in an approved Access Agreement

- **Create an account at data.faa.gov and sign Access Agreement**
  - All NAS data available for external distribution is cataloged in data.faa.gov

- **Tips to Consumers**
  - You will receive an email with your signed copy of the Access Agreement
    - Keep this Access Agreement copy for your records

Step 3: Service Requirements

- **NAS Service Registry/Repository (NSRR)**
  - Purpose: The NAS Registry and Repository (NSRR) contains the "read-me-first" documents needed to develop Consumer interfaces (e.g. Web Service Description Documents (WSDD), JMS description Documents (JMSDD), WSDLs, XML schemas, etc).

- **FAA POC works with consumer to complete on-ramping form**

- **Tips to Consumers**
  - Prior to client development, review NSRR for supporting product documentation
  - Allow 2 business days for account creation
    - http://www.faa.gov/nextgen/programs/swim/nsrr_form/
  - SWIM Governance Policies at link:
    - http://www.faa.gov/nextgen/programs/swim/governance/standards/
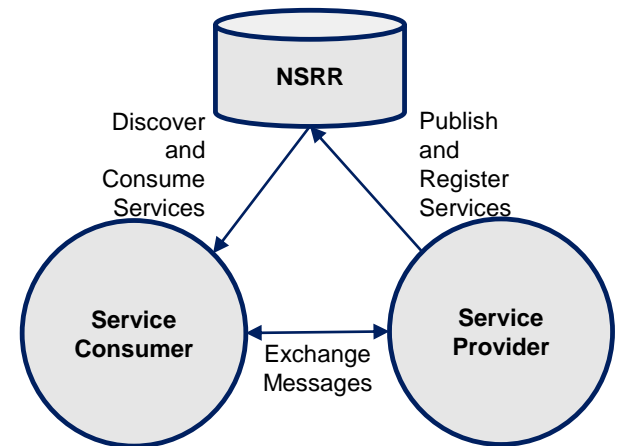
Steps 4-6: Establish Connectivity

- **Review the "*FTI NBPS User Guide*" Document**
  - Understand Section 4 - connection options and availability
  - Understand Section 5 - External End-User Security Responsibilities
  - Understand Section 7 - VPN Technical Requirements
- **Provide the following information to FAA POC**
  - IP Addresses
    - External IP Address of VPN Concentrator
    - IP Addresses of systems that will be accessing the FAA
- **FAA POC provides information for connectivity**
- **Tips to Consumers**
  - Identify critical staff (Network administrator and Security administrator)
    - VPN experience
    - Understanding of consumer network, IP addressing, and change management
    - Understanding of any existing connectivity to the FAA
  - Configure VPN prior to VPN Technical Call
    - Verify internal network routing
    - Configure or update encryption domain
  - Map entire subnets for the NEMS servers rather than unique IP addresses

Step 4: Client Development in the Dev Test Environment

- **First time External Consumers connect to Dev Test Environment**
- **Start client development in parallel with establishing connectivity to Dev Test Environment**
- **Tips to Consumers**
  - Review the NEMS User Guide
    - Determine JMS Client Type as early as possible
    - Understand Basic and Enhanced capabilities of NEMS
  - Identify critical staff to facilitate development
    - Identify experienced Java Message Service (JMS) Developer
  - Review the SWIM Jump start kit
  - To avoid client development process, consider licensing JMS client from third party

Step 5: FAA FTI National Test Bed (FNTB)

- **External Consumers are required to connect to the FNTB**
  - Establish connectivity to the FNTB Domain
  - Perform FNTB consumer qualification testing with the FNTB NEMS environment
    - Required prior to deploying in the operational NAS environment
  - FNTB qualification ensures that consumer has connectivity and is able to receive messages via NEMS
  - Determine if your desired operational connectivity approach requires additional testing in the FNTB
  - Perform failover tests

Note: Consumers with FNTB verified JMS clients will not need re-verification for additional JMS services.

Step 6 and 7: Prepare for Operations and On-Going Support

- **Preparing for Cutover**
  - FAA POC will coordinate your connection and cutover, including status checks, contact information for subject matter experts

- **After transition to Operational Environment**
  - The Network Enterprise Management Center (NEMC) will serve as the SWIM helpdesk for Consumers that have been cut-over to Production
  - NEMC Contact Information:
    - 855-FAA-NEMC (855-322-6362)
    - Use option 3 for Enterprise Services
    - 24/7/365

FAA Documents and Links

SWIM Background
http://www.faa.gov/nextgen/swim

Access Agreement Portal
http://data.faa.gov

NSRR Account Request Form
http://www.faa.gov/nextgen/programs/swim/nsrr_form/

SWIM Jumpstart Kit v4.3
http://www.faa.gov/nextgen/programs/swim/documentation/media/swim_standards/JumpstartR4.zip

FTI NBPS User Guide Volume II- For Non-NAS Users
http://www.faa.gov/nextgen/programs/swim/documentation/media/user-guide/FTI_NBPS_User_Guide.pdf

SWIM NEMS User Guide
http://www.faa.gov/nextgen/programs/swim/documentation/media/user-guide/SWIM_NEMS_User_Guide.pdf

VPN Technical Requirements (excerpt from FTI NBPS User Guide Volume II- For Non-NAS Users)
http://www.faa.gov/nextgen/programs/swim/documentation/media/user-guide/VPN_Technical_Requirements.pdf

Consumer On-Ramping Form
http://www.faa.gov/nextgen/programs/swim/documentation/media/user-guide/External_Consumer_On-Ramping_Form_Template.xls

Pre-Operational Deployment Key Contacts

- Your organization will be provided both a primary and backup POC upon entry into the external consumer on-ramping process

Mailbox: **Data-To-Industry@faa.gov**

- Alex Prikhodko   Alexander.ctr.prikhodko@faa.gov
- Brandon Wang   Brandon.ctr.wang@faa.gov
- David Wickes   David.ctr.wickes@faa.gov
- Wendy Swartz   Wendy.ctr.swartz@faa.gov
- Rob Johnson   Robert.ctr.johnson@faa.gov
- Michelle Sreedharan   Michelle.ctr.sreedharan@faa.gov

AIM FNS NOTAM Distribution

- **Process Flow for AIM FNS NOTAM Distribution**
  - Please review the entirety of this package
    - All steps and sections are relevant with the exception of R&D
  - To start client development, follow the directions provided at
    http://notamdemo.aim.nas.faa.gov/ndshome/#WelcomeNews
    - Use the "Contact Us" link on the above homepage for assistance during client development
  - You may choose to have your SWIM on-ramping kick-off call prior to, during, or after completion of client development
  - To schedule your kick-off call and have a SWIM On-Ramping POC assigned (if one has not already been assigned), please send an email to Data-To-Industry@faa.gov and include
    - Company Name
    - Data products requested
    - Company Points of Contact

External Consumer On-Ramping Process

External Consumer On-Ramping to SWIM Roles and Responsibilities